So, $QM = QB$ (Tangent theorem: pt of intersection of tangents is equidistant from pts of tangencies)

but, Pts P, M & Q are collinear (given)
So, $PQ = PM + MQ$.
Thus, $PQ = PA + QB$ (by substitution).

4) a) [OP) is the bisector of $A\hat{O}M$ (Tangent theorem: st. line joining center & pt of intersection of tangents is bisector of central angle intercepting arc formed by pts of tangencies ... Rule-a)

[OQ) is bisector of MOB (Tangent theorem: rule-a)
but, O is center of (C) with diameter [AB] (given)
So, $A\hat{O}B = 180°$.
Thus, $P\hat{O}Q = 90°$ (bisectors of adj. supp. angles form a right angle)

* In quadrilateral MROS we have:
M is a pt on (C) of diameter [AB] (given)
So, $A\hat{M}B = 90°$ (inscribed angle facing diameter)
(PO) is perp. bisector of (AM) (proved)
(PO) cuts (AM) at R (given)
So, $M\hat{R}O = 90°$.
but, $R\hat{O}S = 90°$ (proved)
Thus, MROS is a rectangle (quad. with 3 right angles)

b) In $\triangle$ MAB we have:
O is center of (C) with diameter [AB] (given)
So, O is midpt of [AB].
MROS is a rectangle (proved)
So, (MR) // (OS) (opp. sides of a rect.)